



Edited by Ranbir Chander Sobti

Advances in Animal Experimentation and Modeling

Understanding Life Phenomena



About the book

Description

Exploration in Laboratory Animal Sciences Understanding Life Phenomena updates our knowledge about the newer technologies such as molecular biology, genomics including sequencing, proteomics, transcriptomics, cell culture, stem cell culture, transgenesis and their translation to understand systematics and phylogeny of laboratory animals at molecular level. In seven sections *Exploration in Laboratory Animal Sciences Understanding Life Phenomena* resolves issues of conservation, applications in environment monitoring, production of drugs and others. Comparative research has enabled use of domestic animal models that translate the advances in basic biosciences to the schemes for human welfare including medicine. Molecular geneticists are unravelling the complexities of mammalian genes and the field of biotechnology is maturing at a fast pace. Additionally, research focused on immunology and animal behavior offer new insight into ways of enhancing animal welfare. The rise in consumption of animal proteins in addition to the challenges of sustaining our natural resources has given animal scientists a vast array of opportunities to engage in integrative systems-based research for meeting the challenges that behold us.

Exploration in Laboratory Animal Sciences Understanding Life Phenomena also discusses the manipulation of animals as factories for the production of safe foods, drugs, and sensors and others to meet the contemporary challenges faced by mankind in the new world order created by pandemic of Covid 19. It also includes several chapters on the causation and management of certain diseases and impact of microbes on life.

Key Features

- Provides insight to newer and futuristic technologies to understand disease process and drug design by animal models
- Addresses a wide variety of species and covers a wide variety of topics (such as animal species, the laboratory setting, regulatory guidelines, and ethical considerations) to fully prepare for work with all types of animals
- Gives a perspective on laboratory animal use that allows to explain the benefits of animal use as required by veterinary technology program accreditation procedure
- Includes examples of animal bio-technological techniques (including stem cell and tissue engineering) for their applications to humanity
- Offers new insight into ways of enhancing animal welfare by the inclusion of research results focused on immunology and laboratory animal behavior

Details

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of their geographical position like ocean surrounded by land (Arctic) and continent surrounded by ocean (Antarctic), the presence and absence of human beings, and related anthropogenic activities, they are quite different with regard to flora and fauna. It is well known that the Arctic is known to harbor polar bear; in contrast, the Antarctic is devoid of the same but harbors penguins. Climatic conditions and the role of global warming also operate quite differently in these two regions. India started its scientific research work in Antarctica from 1981, from first Indian Antarctic station “Dakshin Gangotri,” which later shifted to “Maitri,” the second Indian Antarctic station; of late, its third ultra-modern Indian Antarctic station, “Bharathi,” has contributed immensely to Antarctic research. However, India established its Arctic research station only in the year 2008. In the present chapter, a decade of Indian Arctic research work from 2008 to 2018 has been described.